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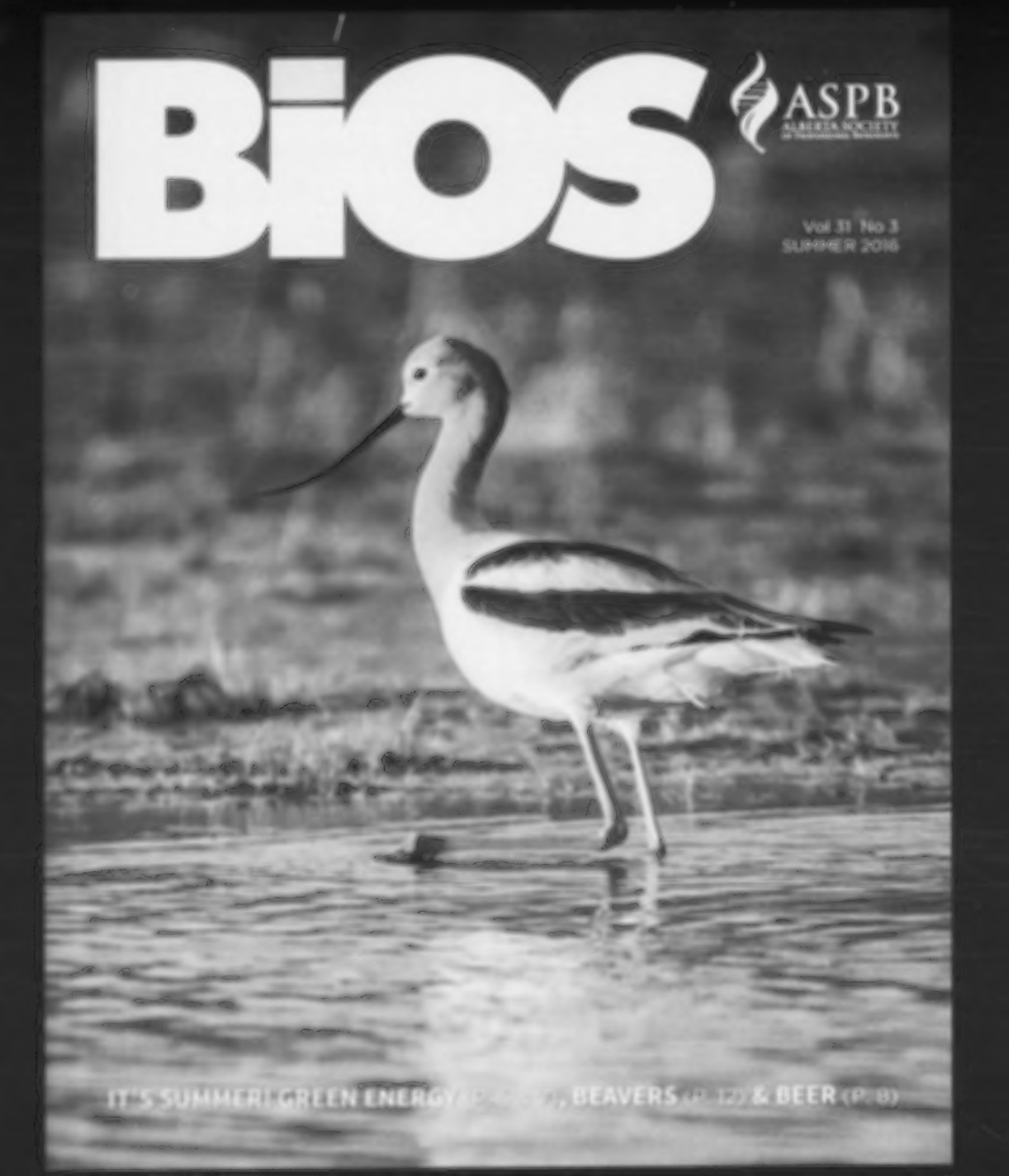

IT'S SUMMER! GREEN ENERGY (P.), BEAVERS (P.) & BEER (P. 8)

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... notes from the E.D.

Our 2016 Annual Conference, ***Turning Uncertainty into Opportunity***, proved to be very successful despite the economic downturn we are all facing in Alberta. The decision made by the conference committee to host the conference in Calgary was a good one, as the ASPB has a large number of members in the city and the event was a good opportunity for members to network.

The conference, subtitled ***Science and regulation in changing times***, featured a number of timely presentations, including Renewable Energy – The Green Machines by Gavin Berg P. Biol., Habitat Branch, Fish and Wildlife Policy Division Environment and Parks. (You will also find feature articles in this issue of BIOS on wind - authored by Robert McCallum, P. Biol. - and solar - submitted by the Canadian Solar Industries Association.)

Following tradition from previous conferences, there were also a number of presentations on regulatory issues and on what it means to be a regulated professional biologist. Opening keynote speaker Catherine Brownlee focused on the need to maintain professional and business networks (especially in tough times), and banquet speaker Colette DerWoriz (senior staff reporter at the Calgary Herald) talked about how biologists can best share their research in today's changing media landscape.

As if times weren't tough enough, Albertans - and indeed all Canadians - have been shattered by the Fort McMurray fire and what it means to friends and colleagues when nearly 90,000 people were displaced and many homes and businesses are lost. As ever when Canadians are under duress, volunteers and professionals alike came together to fight fires and help those displaced people through heroic efforts as well as unprecedented donations to the Red Cross. Even politics took a back seat as municipal, provincial and federal leaders stepped forward in appropriate ways to reassure the residents of our shattered northern city that "bringing back Fort Mac" was a universal priority.

Meanwhile, back at the office (the ASPB office, that is!) summer will be a time for your Society's staff to examine the continuing competency program and our professional discipline procedures. And, unfortunately, desired changes to the provincial regulation appear to be on hold until next year. It is apparent that the Ministry of Labour has other priorities right now, but rest assured we will continue to move the process ahead as best we can, so when they get to us we will be ready!

Stay safe in the field and on the highways, and have a great summer!

Jennifer Sipkens, ASPB Executive Director

On the cover...

The cover photo for this summer edition of BIOS was taken by Elaine Kennedy, BIT and entered into the annual ASPB Conference Photo Contest this year, where it received First Prize. Sadly, cropping the photo for the magazine cover took away some of the marvellous composition and lighting the original had captured. However, it is nonetheless a marvellous photo; Ms Kennedy has this to say about it:

I'm a budding botanist originally from Waterloo, Ontario. The prairies won me over, though, and I've spent the past five years working field biology contracts in Saskatchewan and Alberta. I shot this photo at Slack's Slough after a long day of training in Red Deer. This avocet flew in just as the sun was setting, which bathed the slough in perfect golden light. It didn't seem to mind my presence at all as it skillfully foraged for aquatic insects in the water. I'm really glad I had the foresight to bring rubber boots, because I ended up crouched in almost knee-deep water to get the shot. They may have leaked a little, but damp feet are a small price to pay for a close and tranquil encounter with such a beautiful bird.

New Citizen Science Program Comes to Alberta: The WildResearch Nightjar Survey

by Elly Knight, MSc.

Elly Knight is a Professional Biologist with the Alberta Society of Professional Biologists and the Program Manager for the WildResearch Nightjar Survey. She volunteers her time to the development and management of the WildResearch Nightjar Survey, and is also the Alberta survey coordinator. Ms Knight is a Ph.D. student in Dr. Erin Bayne's lab at the University of Alberta studying how variation in sound can be used to improve our understanding of Common Nighthawk habitat associations.

The author and friend - photo by Janet Ng

Nightjars are a family of cryptic, nocturnal, migratory birds whose populations are thought to be declining across North America. Of the three nightjar species in Canada, two are listed as Threatened under the federal *Species at Risk Act*, and one has been assessed as Data Deficient by the Committee on the Status on Endangered Species in Canada (COSEWIC). Furthermore, nightjars are members of the aerial insectivore guild, which is the fastest-declining group of birds in Canada. Despite their conservation status, nightjars are arguably the most understudied birds in North America. The nocturnal nature of these cryptic birds precludes them from detection on other surveys such as the Breeding Bird Survey (BBS), and their life history and habitat associations are poorly understood.

Here in Alberta, we have two nightjar species (Family *Caprimulgidae*): Common Nighthawk (*Chordeiles minor*) and Common Poorwill (*Phalaenoptilus nuttallii*). Common Nighthawks are a federally Threatened species because their populations have declined over 70% since the mid 1970's. Common Nighthawks are distributed across Canada, but little is known about the habitat preferences of this species beyond their use of open spaces to forage for aerial insects on the wing at dawn and dusk. Initial habitat modeling suggests that Alberta's grasslands and boreal forests support particularly high densities of Common Nighthawks. Common Poorwills were assessed by COSEWIC as Data Deficient in 1997 because insufficient survey information is available to determine status for this species. In Alberta, Common Poorwills are found in the southeastern corner of the province, but because Poorwills are truly nocturnal, not much else is known about their distribution and population trends.

The lack of baseline nightjar data nightjars presents an ideal scenario for citizen science. Despite their cryptic and nocturnal nature, many people are fond of nightjars and keen to contribute to their conservation. With so few nightjar species in Canada, nightjar identification requires little previous experience. Volunteers can easily learn the one or two potential species in their area, rendering rigorous training and observer bias much less of a concern than other multi-species survey programs. In fact, nightjar surveys can be considered a "gateway" citizen science program, where volunteers can learn basic skills in biological monitoring without having extensive pre-existing natural history knowledge. Finally, citizen science may be the only feasible method of adequately surveying the large geographic range that nightjars occupy in Canada.

The WildResearch Nightjar Survey is a nocturnal citizen science survey program that was developed to help fill this baseline data gap for nightjars. The program was started in British Columbia, and 193 volunteers have conducted 346 nightjar surveys since its inception in 2010. The data collected to date has been used to study nightjar detectability and optimize survey protocols. Over the past year, WildResearch has worked with other non-profit organizations and Environment Canada biologists over the past year to develop a national standardized protocol for nightjar surveys. The new national protocol is based on other well-established roadside citizen science bird survey programs including the BBS and the United States Nightjar Survey Network. All survey data is publicly available on Bird Studies Canada's NatureCounts portal so that it can be used to inform habitat modeling, critical habitat mapping, distribution and abundance mapping, and population monitoring. In the next three to five years, survey data will be reviewed to determine the effectiveness of nocturnal nightjar surveys for long-term monitoring by comparing them to BBS data.

Interested in surveying for nightjars? ASPB members are encouraged to participate!

This summer, the WildResearch Nightjar Survey is coming to Alberta! The expansion was encouraged by the success of the program in British Columbia and made possible by the development of a new online atlas for volunteer sign-up and data entry. The program is also expanding to Saskatchewan, New Brunswick, the Yukon, and the Northwest Territories, where local biologists have volunteered to coordinate surveys. Surveys will follow the new national standardized protocol so that

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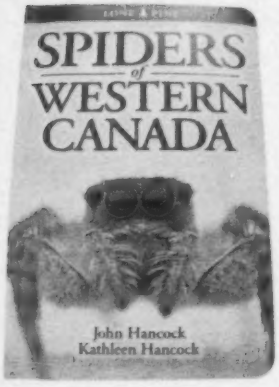
BOOK REVIEW



Spiders of Western Canada

Revieued by Robin Leech, PhD, P. Biol.

Because spiders are not central to the interests of most insect collectors and photographers, the nature of publications on spiders has remained technical, few and far between, and is designed, for the most part, for the use of araneologists.

Alberta Bugs (Bio Sci, University of Alberta, Edmonton) has helped many non-specialists and keen amateurs who live in Western Canada and northwestern United States. They are finding spiders while photographing insects. This has led to many high-quality photos being taken of spiders by amateurs, whose first question is, "Could someone please identify?" Alberta Bugs to the rescue!

Because of this book, *Spiders of Western Canada*, a number of things are going to happen. First is the pleasure of seeing the publication of a book on spiders of Western Canada. This will trigger the publishing of other, bigger more inclusive books on western Canadian spiders. Second, it may signal to the araneologists in Western Canada that they may have to deliver courses in spider recognition and identification (possibly through the Alberta Society of Professional Biologists).

The book has a selection of 27 families of spiders, and 85 of the more common spider species, all hand-painted, in the three western Canadian Provinces. As there are at least 1500 spider species in the three Western Canada provinces, the 85 species represents 5% of the area's spider fauna.

The item new to me in *Spiders of Western Canada* is that most of the species listed in the book are assigned a common name, though most of the common spiders in Western Canada have never been given a common name, except at the family level (e.g., jumping spiders, wolf spiders, orb weaving spiders). A specific common name is applied to an animal when it is recognized by many (e.g., crow, red fox). The spider common names are by the author; consider that most of the spiders in the three western provinces are not recognized even to the family level!

Most zoological journals have a common names committee to ensure that there is no conflict between a common name being assigned to several species, or to ensure that several common names are not assigned to just one species. The assignment of different common names (and yes, even scientific names!) is possible as the males and females of many spider species are very different in shape, size and coloring from one another. Conversely, for scientific names, the International Code of Zoological Nomenclature (ICZN) concerns itself with a whole host of problems, including synonyms, name priority, correct spelling, valid name and valid publication to name a few responsibilities. Its jurisdiction can overrule a journal editor if the ICZN rules and regulations are not followed.

This is a delightful little book of a handy field book size (14x22x1cm). The cover picture shows a large, head-on view female jumping spider. I strongly recommend that amateurs either take a spider taxonomy course, or have someone with them who can make positive identifications. If you are identifying spiders, you will need a stereo microscope with a least 50X magnification.

ACKNOWLEDGEMENTS

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Spiders of Western Canada by John Hancock and Kathleen Hancock (2015). Released February 2016. 191 pages, well illustrated with colored 3-D illustrations (mostly drawings, but some photos). Printed in China. $24.95 Canadian. ISBN: 978-155105-916-7.

Passages

Esther Ramos, P. Biol.

Family, friends and colleagues of Esther Ramos, P. Biol., will be saddened to learn of her recent passing. Ms Ramos has worked as an Environmental Scientist at Cirrus Environmental Services Inc. in Calgary since 2013. She studied for her doctorate in environmental microbiology at the University of Calgary between 2008 and 2012, and had received her Master's degree in microbiology from the University of Havana in her native Cuba in 2006.

Biology in the Wind

by Robert McCallum, P. Biol.

Standing at the edge of some habitat, looking up to the sky, or out to the horizon and trying to see how life is using a project area, is where the biology of wind begins. Depending upon the success of the project, the biology of wind ends with you walking transects at the base of turbines, looking for death.

A dichotomy, with a biologist in the middle. When we study wildlife use at wind projects, we are trying to understand how to put a wind project in the middle of habitat. How can we place turbines and roads to reduce impact? And of course the best way to do that is to understand what lives there. This is by no means a unique practice in our field, it's what we do. Study life.

Glen Dhu Wind Power project, east of New Glasgow, Nova Scotia

First some background. Wind power projects take the kinetic energy from the wind, and turn it into electricity using turbines. They aren't windmills. Those crush grain. These are turbines, huge industrial machines with massive components. Since 2003, when I began in the industry, a typical turbine size might have generated 1.2 Megawatts (MW) of electricity, with a turbine that was 80 metres tall (consisting of the tower sections at the bottom, the nacelle (where the electricity is generated), with a 50 metre blade length. So from the ground to the tip of the turbine blade, was 130 metres of energy capture technology. But these days, turbine sizes are getting bigger. Now turbines capture 4 MW of electricity, with turbines that are 130 metres tall, with 75 metre blades – so the turbines are now 205 metres high. That doesn't mean that projects are now having fewer turbines; it's just that the same number of turbines are generating more electricity.

The methods to study habitat and wildlife on wind projects are well defined, and surprisingly similar, across Canada. In Eastern Canada specific methodologies are defined provincially, but rely heavily on those provided by the Canadian Wildlife Service (CWS). In Ontario, this is also the case, but Ontario has more specific guidelines. Saskatchewan doesn't currently have defined methods so there is a reliance on variations of the CWS standards. Alberta has its own methods, and along with British Columbia they are also similar to the CWS standards. (As a note, I have never worked in Manitoba or Quebec so I am not sure what happens there but I expect it, too, is similar.)

"There is an abundance of studies to complete, including birds (during spring migration, breeding, and fall migration), wetlands, watercourses, fish, vegetation, species at risk, large and small mammals, bat surveys in the spring and fall (and sometimes all summer), GIS mapping, habitat mapping, regulatory consultation, project management, and public consultation."

Ultimately, the methods you use are defined by the habitats and wildlife you encounter, so each project needs biologists. There is an abundance of studies to complete, including birds (during spring migration, breeding, and fall migration), wetlands, watercourses, fish, vegetation, species at risk, large and small mammals, bat surveys in the spring and fall (and sometimes all summer), GIS mapping, habitat mapping, regulatory consultation, project management, and public consultation. And these studies usually also take place over multiple years. There is a lot of work to do on each project, and the studies and results are important to the final layout of each project. Unlike other industries, the constraints that biologists identify have a direct bearing on the layout, and financial outcome, of a wind project.

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Province-wide surface water quality monitoring

by S. K. Basu, BIT

The Alberta Lake Management Society (ALMS) has been organizing a province-wide awareness program regarding the quality of water bodies in Alberta, every summer since 2005. The program is called *Alberta Water Quality Awareness* (AWQA).

ALMS has celebrated Alberta Water Quality Awareness Day on June 5th every year (World Environment Day); each summer the survey is conducted by volunteer "citizen scientists" as well as by professionals. The simple water quality monitoring test kit has been provided by ALMS, helping volunteers across the province to assess four water quality parameters: temperature, dissolved oxygen, pH and turbidity. All the AWQA reports conducted by ALMS volunteers since 2006 are available on the ALMS website (http://alms.ca/awqa-reports).

The latest 2015 Final AQWA report can be found at http://alms.ca/wp-content/uploads/2015/12/AWQA-2015_FinalOnlinePDF.pdf and over a thousand volunteers across Alberta participated. The ALMS website (http://alms.ca) is a valuable source of information and data regarding the aquatic resources of Alberta, the challenges water bodies in Alberta are undergoing, and remediation measures targeted at mitigating those challenges.

This year, ALMS is phasing out the AWQA program and encouraging interested individuals to instead utilize the test kits available through the World Water Monitoring Challenge (WWMC) program. For people who still have test kits from last year, they can continue to upload their data to the ALMS website; more information regarding the WWMC program can be found at www.monitorwater.org.

Photos by S. K. Basu

... Biology in the Wind

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Once a project is built (and those can be limited depending upon electricity market economics) comes the continuation of those studies, and of course the study of death. Mortality surveys are a large component of any developed wind project and typically encompass a number of years post-construction.

The results of these studies can shape when turbines are turned on and off (either daily, weekly, or seasonally) and at what wind speed they are allowed to begin operations.

So take what you know from the industry you are in, and jump across into renewables. As biologists, we rely on standardized and well practiced methods for assessment of the species and habitats in those areas being affected. It doesn't really matter if a proponent is planning on 2 or 30 wind turbines, or doing it in B.C. or Nova Scotia. Your skills work across Canada. It will take some time to understand the local species but you'd be surprised how similar this country looks from coast to coast.

Robert McCallum, P. Biol., is the President of McCallum Environmental Ltd., a group of biologists based in Halifax which works on renewable projects across Canada. The company currently has projects in Newfoundland and Labrador, Nova Scotia, New Brunswick, and Alberta.

Developing Alberta's Solar Energy Resource: Project-Level Considerations for Provincial-Level Policies

by Patrick Bateman

Over 100 years, Alberta's average annual temperature has increased by ~1.4°C. Observed impacts on several wildlife species and their habitats are becoming significant. Over the next 40 years, it is predicted that Alberta's average temperature could increase faster, by between 2.5 and 3.5°C. This outcome poses potentially devastating ecological impacts.

The "Paris Agreement" negotiated by representatives of 195 countries at the 21st Conference of the Parties of the UNFCCC in Paris and adopted by consensus on December 12, 2015 sets the stage for more significant public policy to address climate change at all levels of government in Canada than ever before.

> In Alberta, the commitment to phase-out the province's coal-fired generation fleet by 2030 will be a major contributor toward Canada's national greenhouse gas emissions targets.

Coal currently meets more than half of Alberta's annual electricity needs. As a result of the coal phase-out, new cleaner electricity generation capacity will need to be brought online in its stead over the coming decade. This will open up major new opportunities for resource development in the province. One such resource is solar energy. Alberta has the best solar energy resource in Canada. In one day, Alberta's solar energy resource is equivalent to the province's remaining conventional established oil reserves. To this point, this proven solar energy resource is yet to be developed to even a small fraction of its potential.

Thanks to massive cost reductions over the past decade, harnessing solar energy for electricity generation is now a cost-effective option, especially in facilities at a large scale. Large solar electricity generation facilities in Canada today using "photovoltaic modules" typically span sixty to six hundred acres. These facilities have no associated air pollution emissions in operation, no moving parts and steadily advancing technology and research is resulting in carefully designed facilities that are sited and designed to complement the surrounding environment and incorporate various functions, including biodiversity, within the site footprint.

While there are no large facilities in operation in Alberta today, the Canadian Solar Industries Association (CanSIA) estimates that by 2030 there could be hundreds. As Alberta begins to prepare for its solar future, policy-makers are looking beyond their provincial borders. Work to modernize regulatory processes that ensure climate change policy objectives at the provincial-level can be met effectively, while minimizing the risks to wildlife and habitats at the solar project-level is underway.

Ontario is the only province in Canada with large scale solar facilities in operation. Therefore, it provides some good examples of mature policy-making and development best practices to ensure the successful integration of solar facilities into the natural environment.

In Ontario, solar developers follow rigorous regulatory approval processes and are subject to the Natural Heritage Assessment Guide which has been in place since 2010. These formal processes take into account the natural environment and wildlife in concern through a comprehensive records review, site investigations, evaluation of habitat significance and determination of

Home Sweet Home: under the cover of a solar array! Photo by Wayne A. Mason

environmental impact mitigations. Best management practices such as avoidance of significant features such as wetlands, creeks and streams are incorporated into site design. Moreover, where necessary, appropriate mitigation measures are implemented to protect the natural environment.

Based on the outcomes of the assessment, pre and post-construction monitoring is often required with an emphasis on determining disturbance effects to adjacent habitats. The low impact of large solar facilities on the natural environment is being confirmed through various field observations and studies. Even though solar modules can span over large sections of land, the infrastructure (i.e. roads and structures) only displace about 5% of the land surface; piles in the ground displace less than 1% of ground surface leaving much of the ground below and surrounding the panels available for vegetation and foraging. The infrequent human disturbance in much of the area within a solar facility creates a new environment for the benefit of fauna. According to a study conducted by BRE (Biodiversity Guidance for Solar Developments, Ed.s G. E. Parker and L. Greene) in 2014, "with appropriate land management,

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Microbiology and The Art of Making Beer

by Ma. Adee Light H. Lapuzilima, P Biol.

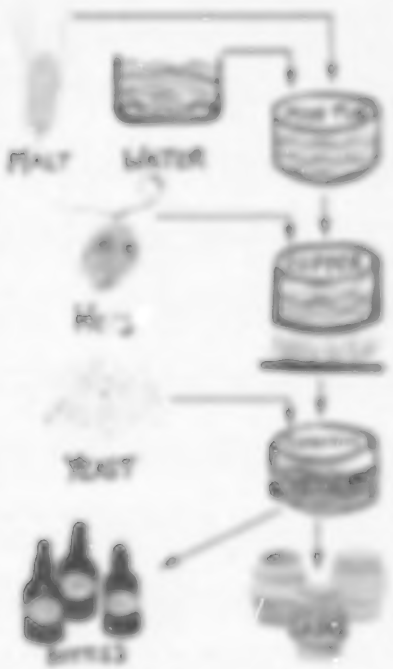
Most beer drinkers probably don't give much thought to the process behind brewing a quality beer, yet it is a very interesting one. Beer is a product of traditional food fermentation, a desirable microbial activity. Microbial activity is involved at every stage of brewing beer; however, unwanted microbial growth brings threat to the quality of the final product and must be actively monitored and controlled. Whatever the result of these microbial activities, desirable or not, microbiology plays a vital role in the art of making beer.

In a brewery, there are several microbiological critical control points that the brewery microbiologist must test for conformity. These control points entirely cover the processing key points, starting from brewing and fermentation to filtration and lastly, the bottling process itself.

The brewing process involves the utilization and extraction of key ingredients of beer – the malted barley, hops, and brewing water – which all undergo quality checking prior to extraction. The key ingredients impart distinctive features to the over-all profile of beer; however, these may also be sources of microbial contamination.

The brewing process consists of the mixing of malted barley and hops with brewing water in a large kettle, bringing it altogether to a boil, cooling it down, then draining it into a fermentation vessel. The extracted fluid (the wort) is thick with sugars ready to be feast upon by the yeast.

Possible microbial sources in the brewing stage can be attributed to the low quality of raw materials used. In the case of malted barley, the use of contaminated malt results in beer foaming ("gushing") caused by the soil fungus *Fusarium*, due to insufficient drying during storage. Furthermore, hops contain varied



A simplified process of beer production.
© Erica Read. Courtesy of Pinterest

> The use of Pure Yeast Culture (PYC), which is aseptically propagated by the brewery microbiologist, is the best way to ensure that the yeast remains pure, unchanged, and free from contaminants.

microflora but are mostly boiled during brewing; therefore, their effects on beer quality are negligible. However, hops used for dry-hopping can introduce wild yeasts into cask-conditioned beers. Lastly, brewing water at times may contain Gram-negative bacteria, such as coliforms, which can grow in the wort, causing off-flavours though it cannot survive in the final beer due to a low pH value of around 4.0.

The fermentation process begins with "pitching" of the brewer's yeast into the cooled wort, wherein *Saccharomyces cerevisiae* (a bottom-fermenting yeast) is tasked to do the essential job of breaking down malt sugars and converting it to alcohol and CO_2. Just to remind everyone, the brewer's yeast is the greatest hard-working brewer of all times; vital flavours are imparted in this crucial process. Fermentation lasts about seven to ten days, while the yeast continuously multiplies until a creamy, frothy head forms on top of the brew. At the end of fermentation, the yeast is harvested, stored in a yeast tank at 1-2° C, and re-pitched over the next brew as long as quality is maintained. The raw unfiltered beer is stored cold for one to three weeks prior to filtration.

In fermentation, the use of contaminated brewer's yeast is a big NO-NO. Recycled pitching yeast is one of the most frequent sources of contamination, but acid washing keeps down the contaminants. The use of Pure Yeast Culture (PYC), which is aseptically propagated by the brewery microbiologist, is the best way to ensure that the yeast remains pure, unchanged, and free from contaminants. The laboratory propagation of a PYC entails aseptic exposure at room temperature to speed up yeast growth and keeping it viably active and ready for brewery-scale propagation.

During cold storage after the fermentation process, little or no microbial contamination is expected to occur in beer due to low temperatures. However, if beer is stored for long periods and/or at warm temperatures, then the possible growth of beer spoilage microorganisms may occur.

The filtration process is the passing of the cold-stored raw beer through beer filters to eliminate remaining yeast and other impurities, making it ready for the

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... Solar Energy Resource

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solar farms have the potential to support wildlife and contribute to national biodiversity targets.

When appropriate setbacks and mitigations such as storm water controls are implemented, disturbance effects on surrounding wildlife have proven to be extremely rare and limited. There are also many examples of wildlife continuing to thrive adjacent to and within facilities. For example, pre-construction and post-operation studies conducted for a solar facility located within 10 metres of a wetland in Ontario indicated no material impact on wetland function or productivity of amphibian breeding habitat.

Operational best practices can enhance the biodiversity contributions of large solar facilities. For example, avoiding mowing of vegetation during the bird nesting season helps protect ground nesting birds observed in the vegetation beneath solar panels. A variety of birds and animals such as coyotes, fox, rabbits, raccoons, rodents and wild turkeys are observed within the project footprints. Avian species such as Canada geese, mallard ducks, seagulls, lambs, owls, sparrows, canvas munk/whales, woodpeckers, killdeer (nesting inside arrays) and horseflies are observed as well.

While Alberta makes the critical shift from coal-fired electricity to renewable energies including solar, the key to new policy development will be to understand how the technology differs from other forms of energy generation and to draw from experiences elsewhere. For example, the level of concern related to bird and bat fatalities that are associated with other forms of generation have not been found in Ontario or in other North American jurisdictions. It will be the solar industry's role to help policy-makers understand actual risks and the assessment and mitigation measures that are commensurate with that level of risk.

For this reason, CanWEA initiated the Solar & Wildlife Conservation Best Practices Forum to work with key stakeholders in Alberta to deliver a world-class regulatory framework for wildlife conservation with respect to the development, construction, operation and de-commissioning of large solar facilities in Alberta. CanWEA's Solar & Wildlife Conservation Best Practices Forum are developers, engineers and wildlife biologists who are developing best practices for wildlife conservation during the development, construction and operation of large solar facilities. Throughout 2016, a new guidelines for large solar electricity generation facilities are developed in Alberta, we are available as a resource to policy-makers and stakeholders and interested parties.

The author, Patrick Bateman, is Director of Market Intelligence & Research, Canadian Solar Industries Association.

... The Art of Making Beer

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bottling process. It is also at this stage that the last sugars (CO2) is diffused into the beer.

During the bottling process, cleaned bottles from the bottle washer machine are filled with beer to the fillet, crowned, and pasteurized. After pasteurization, the beer is expected to be microbiologically stable. Emerging from the pasteurizer, the beer bottles are inspected, labelled, placed in cases, arranged in pallets, transported to the warehouse ready for shipment, and find their way straight to your fridge!

I am not trying to scare you about having unwanted bacteria in your beer, but not unsure, you're in good hands, keep calm, your brewery microbiologist is on guard, all the time! Now it's time to wrap this up and have an ice cold beer and beat the summer heat! Cheers to life!

Ms. Adee Light-Ill, Logosfilms submitted this article to BIOS on behalf of the BIOS Microbiology Steering Committee. She had worked as a brewery microbiologist in a large-scale manufacturing brewing company in the Philippines, before moving to Canada. "I can proudly say that I really had a fascinating job. Aside from having a good working relationship with all sorts of brewery microorganisms, every day is a fun beer tasting day with sensorial crackers for palate cleansers on the side. These are only few of the amazing perks of working in a brewery and not to forget, every Friday is Beer Tasting Day for beer for everyone!" Ms. Logosfilms is a Quality Specialist - Quality Assurance in Facilities Management at the University of Calgary.

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Markus Thormann receives Peggy Thompson Award

Markus N. Thormann, PhD, P. Biol., was presented with the Peggy Thompson Publication at the 2016 AHPR conference in April. AHPR Awards Committee Chair Dave Foley commended Dr. Thormann's nomination for the publication had included some important context about his collaboration with the paper's Russian co-author.

"While neurological research has been ongoing in Russia for the better part of the past century, relatively little of this research is accessible to the western world, as these Russian studies are mostly published in Russian or Russian journals (which most western universities do not have any access to).

"Over the past couple of years, I have been collaborating with Russian neurologist Nina Filippova on neurological interests of western Siberian grasslands to have her research published in western journals to shine a light on the work being done in Russia on improvement ecological and socio-ecological studies. My roles assisting with project experimental design, data interpretation, writing parts of the manuscripts pre-submission, editing, and making sure that the research is valid and defendable.

"This paper, 'The fungal assemblage of Anabasimalis punctifera in big bluestem, N.V. Filippova and M.N. Thormann,' is the second manuscript we have published in

Markus Thormann

Mine and Nina's [Russian] journal with a focus on grassland ecology."

Edmonton Science Fair celebrates youth in science

The 2016 edition of the Edmonton Regional Science Fair (ERSF) was held April 8 and 10 this year. ERSF Awards Chair Carol Scotcroft-Tomenson at the Department of Psychology, University of Alberta, Michele Miranda, PhD, emphasized the importance of support from organizations like the Alberta Society of Professional Biologists which make this list possible. "The 2016 edition of the Edmonton Regional Science Fair was a great success. The ERSF committee would like to take this opportunity to thank you for your continuous support of the fair and for encouraging youth in science! We truly could not put on this fair and provide the great science related opportunity without the support of organizations like the Alberta Society of Professional Biologists."

The following two students were recognized this year through the ASPB sponsorship of the Professional Biologist Award winner. Sukhpreet Mahtar (Austin Charter School) for her project 'Are Salt Alters T. brunnii and

"The 2016 edition of the Edmonton Regional Science Fair was a great success. The ERSF committee would like to take this opportunity to thank you for your continuous support of the fair and for encouraging youth in science!"

Sukhpreet Mahtar

an Honourable Mention awarded to Mahak Bhatt (Austin Charter School) for her project 'Can Nature Teach Design and Technology?'

Mr. Mahtar and Ms. Bhatt are shown in the accompanying photograph with presenter Jaclynn Wong, a regular member of the ERSF council as well as one of ERSF's two delegates who will be representing Team Edmonton at the Canada Wide Science Fair in Montreal from May 14-21 this year. Credit for both photographs are ERSF 2016.

Mahak Bhatt

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Beaver: an ally, or an inconvenient species?

Photo: Steve Morrison